PepsiCo's Replenishment Playbook: Franchise Bottlers & 3rd Party Manufacuring

June 2023

Review this Playbook from start to finish or select a section based on with your level of Replenishment knowledge

Replenishment Basics

- This section defines what Replenishment is, explains how it is achieved, describes how to set a target and provides guidance about how to identify and select partners and projects

PepsiCo Replenishment Goal and Program Requirements

- This section outlines PepsiCo's Replenishment goal and program guidelines and requirements, including how project locations are identified, considerations for project selection and the measurement methodology and process for reporting volumetric benefits

Appendix

- Project Type Matrix lists different project objectives and activities, organized by project category, and the associated data and measurement methodology used to measure volumetric benefits
- Green And Grey Infrastructure explains the difference between these terms and why PepsiCo prefers green infrastructure
- Replenishment Project Benefits outlines the type of benefits that a Replenishment project may deliver based on the unique watershed challenges the project aims to address
- Links to additional resources

Replenishment Basics

Replenishment can be thought of as seeking to “return” the water we use in our operations back into the local watershed

- Our Replenishment goal can be thought of as seeking to “**recharge**” or “**return**” the water that we utilize for our high water risk manufacturing and product **back into the watershed** it was sourced from.
- To achieve our 2030 Replenishment Goal, we Replenish the water we use in manufacturing operations located in high water risk areas in the **relevant watersheds.**
- Withdrawing water for our operational use from an already water stressed area creates risk for PepsiCo and third-party manufacturers both in terms of reducing the amount of water available for our needs in the future and increasing the pressure on a shared resource critical to other watershed stakeholders, including communities and ecosystems.

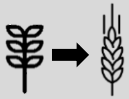
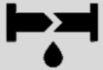
Replenishment is achieved through projects implemented by partner organizations that deliver 'volumetric water benefits'

- Replenishment is achieved through funding **partner organizations** to implement **four typical types of projects**:
  - Land Conservation and Restoration
  - Water Supply Reliability
  - Water Quality
  - Aquatic Habitat Restoration

- Project impact is measured in terms of the **volumetric water benefits** of the activities implemented. For these four project types, the impact is measured using the following **indicators**:

	Land Conservation and Restoration	Water Supply Reliability	Water Quality	Aquatic Habitat Restoration
Volumetric Water Benefit Indicators	• Avoided runoff • Reduced runoff	• Reduced withdrawal or reduced consumption • Volume provided • Increased recharge	• Reduced runoff • Volume captured • Volume treated	• Maintained recharge • Increased recharge • Reduced withdrawal • Improved flow regime

There are many ways Replenishment can be achieved and different methods to calculate their volumetric water benefits

Type of Replenishment Project	General Objective	Calculating Replenish Volume
Reforestation 	Reduce watershed impacts from excessive runoff and increase groundwater infiltration	Use watershed catchment properties (terrain slope, soil type, vegetation type and age, etc.) to calculate reduction in water runoff and sediment wash off and delivery
Irrigation Efficiency 	Reduce irrigation withdrawal and use via drip irrigation or other efficiency improvements	Calculated using the reduction in quantity of water used for irrigation (metered data preferred)
Invasive plant species removal 	Removal of invasive plant species in a catchment which typically consume significantly more water than native plant species and replace with indigenous plants	Calculated by comparing the difference in evapotranspiration rates between invasive and native plant species
Alternative crop production 	Switching crops with high water requirements (e.g., Alfalfa) with crops that have a lower water demand across the growing season (e.g., Barley).	Calculated evaluating the delta between consumptive water use (per acre feet) of the existing crop being cultivated and the intended replacement crop. Consumption based on established data by crop type.
Non-revenue water loss reduction (Leak Repair) 	Reduce water withdrawals via infrastructure upgrades	Use metering data to calculate water savings pre- and post-repairs

PepsiCo Replenishment Goal and Program Requirements

PepsiCo has a 2030 Replenishment goal specific to third-party manufacturers

By **2030**: In high water risk areas, Replenish 100% of PepsiCo product-related[1] water used in manufacturing facilities.

- **Objective:** Through this goal, Third-Party Manufacturers (3PM) and Franchise Bottlers can reduce water-related business risks, support local 'license to operate' and stimulate watershed-level collective action and collaboration on water stewardship.

- **Scope:** This goal includes water use from all plants designated as high water risk per the Global Water Risk Assessment, which is conducted every 3 years[2], or through an equivalent risk assessment carried out by the 3PM[3] or Franchise Bottler[3]

1 While the requirement is to Replenish water use related to PepsiCo products, Partners are encouraged to Replenish total site water usage where possible.
2 Most recent Assessment conducted in 2021. Please reach out to your PepsiCo Contact for more information.
3 Independent Water Risk Assessment methodology will require PepsiCo sign-off. Please reach out to your PepsiCo Contact to discuss.

Replenishment applies to Third-Party Manufacturing and Franchise Bottling plants considered to be high water risk

What does High Water Risk mean?

"Water risk" refers to the possibility of an entity experiencing a water-related challenge (e.g., water scarcity, water stress, flooding, infrastructure decay, drought).

"Water risk for businesses" refers to the ways in which water-related challenges potentially undermine business viability. It is commonly categorized into three inter-related types:

- *Physical* – Having too little water, too much water, water that is unfit for use or inaccessible water
- *Regulatory* – Changing, ineffective or poorly-implemented public water policy and/or regulations
- *Reputational* – Stakeholder perceptions that a company does not conduct business in a sustainable or responsible fashion with respect to water

Source: What Do "Water Scarcity", "Water Stress", and "Water Risk" Actually Mean? - CEO Water Mandate

How does PepsiCo assess High Water Risk?

- All global Third-Party Manufacturing and Franchise Bottling facilities are included in a Water Risk Assessment, conducted every 3 years
- Sites are prioritized based upon a rating derived from an average score calculated from
  - Core WRI Aqueduct Indicators
  - Consultant[1] regional validation
- All ratings are based upon a 1 (Low) to 5 (High) scale with **> 3.0 representing a moderate or higher business risk position**
- Ratings were calculated for **Current and Future Trend** (3-5 Years) conditions
- Scores of 3.5 or greater result in High Water Risk categorization

[1] Consultant selected is a leading provider of water resource expertise with extensive experience in the food and beverage sector

Globally, there are approximately 300 company-owned and Third-Party Manufacturing and Franchise Bottling facilities considered high water risk

Company-Owned

High Water Risk Sites: ~100

Third-Party Manufacturing/Franchise Bottling

High Water Risk Sites: ~ 200

Once high water risk plants are identified, the Replenishment project location is determined by the plant's local water context

Selecting a Replenishment project location that will "return" water back to the watershed is based on the plant's location and local water resources. For many plants, this means a project will occur within the minor watershed identified in the Global Water Risk Assessment.

However, many watersheds have complex interconnections and overlaps. As a result, potential Replenishment projects can be screened and selected based on the following:

- Tier I: Replenishment projects within the watershed **where facility *demand* occurs**
- Tier II: Indirect Replenishment projects **within an interconnected watershed**, due to regional water supply connections/transfers
- Tier III: Replenishment projects within the watershed(s) **where facility *supply* is sourced**

How much volume a Replenishment project should deliver is based on the annual volume of water used in the plant

For Third-Party Manufacturing and Franchise Bottling high water risk locations:

- The site should first know its total water use in manufacturing operations, including ingredient water use (total raw water used).
- The site's Replenishment target should be equivalent to PepsiCo's product-related water used in manufacturing operations.

If the facility produces products in addition to those produced for PepsiCo,

- First determine the total volume of water used in PepsiCo product-related manufacturing.
- If that is not possible, determine the percent of total production volume for PepsiCo-specific production. That percentage of total water used is the Replenishment target.
- If not possible, an average Water Use Efficiency volume for an equivalent product should be used to set the Replenishment target[1].
- Given the intent to reduce the water risk exposure to the facility and promotion of good corporate water stewardship, third party manufacturers are encouraged to Replenish the entire facility's water use, irrespective of whether it is linked to PepsiCo product manufacture.

[1] *For support in this approach, please reach out to your PepsiCo Contact.*

Future annual plant water use should also be taken into consideration when setting a Replenishment target

- Replenishment progress is calculated using water use and volumetric water benefit data from the same year (i.e., there is no comparison to a baseline year).
- As site Water Use Efficiency increases (site uses less water per unit of product produced), the Replenishment target may reduce over time.

If a plant is on track to achieving its water efficiency target, the Replenishment target could be calculated as follows:

2030 Water use efficiency target	***x***	***Projected 2030 production volume***	***=***	***2030 Replenishment target***

Before project selection, it is important to identify a reputable partner to design and implement the Replenishment project

Replenishment projects are typically implemented by third party partners (e.g., NGOs or contractors). Key qualifications for partners include:

- ✓ Technical knowledge about and experience with watershed restoration
- ✓ Good reputation, track record and experience in implementing similar types of projects in the watersheds and communities you are targeting
- ✓ Understanding of corporate water stewardship strategies and Replenishment programming

Reputable global organizations that can implement Replenishment projects include, but are not limited to:

The Nature Conservancy

WWF

CONSERVATION INTERNATIONAL

Arbor Day Foundation

Country- and watershed-level organizations are also great options.

Need help? Reach out to your PepsiCo Contact who can connect you with someone to help you identify partners and project opportunities.

With the location, volumetric target and partner identified, then consider the Replenishment Program Requirements to inform project selection

What counts for Replenishment?

Replenishment projects must align with this Playbook and the Volumetric Water Benefit Accounting methodology[1] and:

- ✓ Be located within the minor watershed of your facility as identified in the water risk assessment (or documented Tier II or III connection)
- ✓ Be locally relevant, addressing water challenges that are applicable to the watershed
- ✓ Include nature-based solutions (preferred) that focus on conserving or restoring water quantity or quality
- ✓ Adhere to the concept of additionality, whereby projects should generate eligible and quantifiable volumetric benefits (based on approved quantification methodology[1])
- ✓ Be sustainable over time with ongoing measurement and evaluation
- ✓ Address stakeholder objectives and reflect input and support from local communities

What does not count for Replenishment?

- × Wastewater, embedded ingredient water (e.g., from potatoes) and other process water from the facility
- × Rainwater harvesting on-site that is used to benefit operational water use efficiency
- × Treated wastewater discharge

Refer to the Appendix in this document for more details on eligible project types and green / grey infrastructure

[1] VWBA Methodology

During project implementation, annual Replenishment progress is calculated by comparing volumetric water benefits to plant water use

Replenishment progress is calculated using plant water use and volumetric water benefit data from the same year (i.e., there is no comparison to a baseline year).

We calculate Replenishment progress as a percentage:

This data is reported via third-party partners

$$\frac{[Replenishment\ Volume\ (L)]}{[Water\ Use\ (L)]}\ \text{X}\ 100\% = \text{Percent Replenished}$$

'Water use' is the same data used to calculate Operational Water Use Efficiency progress

Annual project volumetric water benefits MUST be validated by third-parties using the VWBA methodology

Benefits must be quantified and reported annually to your PepsiCo Contact. Benefit reporting requires:

- Third-party validation of the project benefits[1]
  - ***You are responsible for contracting third party validators for the project (not project partners). Validators must have experience using the VWBA methodology and quantifying Replenishment volumetric benefits.***
- Estimation using the *Volumetric Water Benefit Accounting (VWBA) methodology*
  - Volumetric water benefit reports should include calculations showing the volume of water conserved or returned to the watershed as a result of your investment (i.e., ensure the proportion of your funding for a project is equivalent to the proportion of benefits you claim).

Third party validation **reports are due each year by January 31**

Projects without on-time third party validation reports may not be counted in Replenishment progress

Questions? Reach out to your PepsiCo Contact.

[1] *Third party partners PepsiCo has used to date include LimnoTech, Deloitte, EnviroTaqa and Bureau Veritas. Other options include, but are not limited to, KPMG, SCS Global Services and Quantis.*

Appendix
Project Type Matrix

Project Type Matrix

Activity Category	General Objective	Specific Activities	Required Input Data	Methodology/ Tools Used to Quantify Benefits	Quantity Benefit	Quality Benefit
Watershed Protection						
Agricultural Improvements	Reduce water impacts through improved management practices	Reduce fertilizer, herbicide, or pesticide application to crop land	• Watershed catchment properties • Daily meteorological data • Pre-/post-project nutrient or chemical application rates	Calculate estimated reduction in nutrient/ chemical load delivered to water bodies via SWAT watershed model		√
		Reduce irrigation water use via drip irrigation and other practices	• Land surface area • Pre-/post-project water √ application rates	Calculate reduction in quantity of water used for irrigation (metered data preferred)	√	
		Implement conservation practices (e.g., conservation tillage, terracing, cover crops)	• Watershed catchment properties • Daily meteorological data • Pre-/post-project tillage and other conservation practices	Calculate change in water runoff and soil wash off with SWAT watershed model	√	√
		Install filter/buffer strips to intercept runoff	• Watershed catchment properties for drainage area • Daily meteorological data • Filter/buffer characteristics (location, width, length)	Calculate reduction in sediment, nutrient, and/or pesticide loading to receiving water bodies via SWAT watershed model	√	√
		Construct wetlands to intercept runoff	• For direct monitoring approach: inflow/outflow discharge rates and pollutant concentrations • For modeling approach: watershed catchment properties and daily meteorological data	Calculate change in hydrograph and pollutant loading reductions via direct monitoring or SWAT watershed model calculations	√	√

Project Type Matrix

Activity Category	General Objective	Specific Activities	Required Input Data	Methodology/ Tools Used to Quantify Benefits	Quantity Benefit	Quality Benefit
Watershed Protection (Contd.)						
Land Cover Improvements	Reduce watershed impacts from excessive runoff	Reforest or re-vegetate degraded land area	Watershed catchment properties	Area >200 ha: Calculate reduction in water runoff and sediment wash off and delivery with SWAT watershed model	√	√
		Preserve existing land resources	Daily meteorological data	Area <200 ha: Benefit = 4% of annual average precipitation volume (Redder and Larson, 2010)	√	√
		Construct riparian buffer	• Watershed catchment properties for drainage area • Daily meteorological data • Buffer characteristics (location, width, length)	Calculate reduction in sediment, nutrient, and/or pesticide loading to receiving water bodies via SWAT watershed model	√	√

Project Type Matrix

Activity Category	General Objective	Specific Activities	Required Input Data	Methodology/ Tools Used to Quantify Benefits	Quantity Benefit	Quality Benefit
Watershed Protection (Contd.)						
Surface & Groundwater Quantity Management	Increase water availability for the ecosystems and communities	Install check dams	• For direct monitoring approach: inflow/outflow discharge rates and sediment concentrations • For model-based approach: watershed catchment properties, daily meteorological data, channel and check dam geometry	• Calculate increased water infiltration (or change in hydrograph) and reduction in sediment delivery via SWAT watershed model	√	√
		Reconnect water body to floodplain or block drainage structures to restore storage capacity	• Surface area of wetland • Volume and frequency of √ inundation	• Calculate typical annual volume of restored wetland inundation	√	
		Water transfers to protect environmental flows	Documented volume of flow transferred	• Direct metering of transferred flow	√	
		Rainwater harvesting and aquifer recharge	• Typical/average monthly precipitation • Collection & storage system characteristics (surface area, etc.) • Aquifer recharge system characteristics (maintenance, etc.)	• Rainwater Harvesting Model	√	
		Stormwater management (e.g., rain gardens, rain barrels, detention basins)	• Watershed catchment properties (i.e., land surface area) • Daily meteorological data • Structure characteristics (location, surface area, storage capacity)	• Calculate change in runoff hydrograph and sediment and/or nutrient wash off loadings with SWAT watershed model	√	√
		Biologic management (removal of 'thirsty' invasive species)	• Surface area for removal • Water consumption rate for invasive species (pre-project) and native vegetation (post-project)	• Calculation of change in annual uptake and evapotranspiration losses	√	

Project Type Matrix

Activity Category	General Objective	Specific Activities	Required Input Data	Methodology/ Tools Used to Quantify Benefits	Quantity Benefit	Quality Benefit
Watershed Protection (Contd.)						
Treatment of Polluted Discharge	Improve water quality of receiving water	Construct treatment wetland or wastewater treatment plant	Average discharge rate of treated water from treatment system (post-project)	1. Calculate water quantity benefit as the discharge rate from treatment system	√	√
			Treatment type or effluent monitoring data	2. Calculate water quality benefit as difference between pre- and post-project pollutant loads based on type of treatment or monitoring data	√	√
Community-level WASH*	Improve drinking water access	WASH infrastructure construction or rehabilitation, water distribution, water treatment	Water meter data or pump discharge rates and operating times Or Number of beneficiaries with access, required per-capita availability (default is 20 L/day for full access), and, if available, maximum delivery/pumping capacity of the new supply	Calculate average annual volume of drinking water provided based on: 1. Metered flows or 2. The number of beneficiaries with reasonable access and an estimate of per-capita volume provided	√	

**Community-level WASH projects must be pre-approved by PepsiCo because not all WASH projects are well-aligned with Replenishment. Reach out to your PepsiCo Contact for more information.*

Project Type Matrix

Activity Category	General Objective	Specific Activities	Required Input Data	Methodology/ Tools Used to Quantify Benefits	Quantity Benefit	Quality Benefit
Water for Productive Use						
Agricultural	Provide water to promote crop production	Increase water supply for irrigation use	Pre- and post-project irrigation water use (e.g., million liters per hectare per year)	Calculate increase in annual volume of irrigation water use relative to pre-project condition	√	
Water Reuse	Provide water to community for economic benefit	Reuse treated process water from plant for industry or irrigation	Volume of water reused per year and purpose	Calculate annual volume of water reused	√	
Water Conservation	Reduce water losses (e.g., leak repairs)	Reduce water withdrawals via infrastructure upgrades	Water savings based on metering data or estimates of pre-/post-project usage	Calculate water savings based on direct metering data for source water body	√	

Appendix
Green and Grey Infrastructure

Green And Grey Infrastructure

"Green infrastructure", or Nature Based Solutions, includes natural ecosystems (forests, wetlands, etc.) that can serve the same function (e.g., water filtration or storage) as "grey infrastructure", or human-engineered solutions.

Nature-based or "green infrastructure" projects are the company's preferred option. Why?

- ✓Green infrastructure is a better long-term investment as it is self-sustaining by its very nature and there is sufficient scientific research to support that it helps mitigate water stress
- ✓The extended benefits are, in most cases, greater in that associated benefits such as carbon sequestration, biodiversity, socio-economic, and water quality benefits are realized over and above volumetric benefits
- ✓Green infrastructure has the benefit of being able to scale impact and raise awareness and advocacy through collaborative partnership models which is key for effecting the change needed

Are there drawbacks with green infrastructure?

- ✓The lead time for quantifying volumetric benefits is often longer with green infrastructure than with grey infrastructure. This may become a more critical drawback as we approach 2030 goal deadline
- ✓The initial costs may be higher compared to grey infrastructure, however, over their effective life-span this is typically reversed

Green And Grey Infrastructure

When does grey infrastructure make the most sense?

- ✓ In places where the volume that needs to be Replenished is small
- ✓ If there are significant issues around water loss / leakage in the local water network which has been flagged by stakeholders
- ✓ When they support the recovery and reuse of water in a water stressed area, reducing the overall demand burden on the watershed

Are there drawbacks with grey infrastructure that should be considered?

- ✓ Evaluate duration of project benefits as grey infrastructure will need to be replaced when it reaches the end of its useful life
- ✓ Factor in maintenance costs to ensure it reaches its useful life
- ✓ Duration of the volumetric benefit you can claim can be reduced if other parties, such as the local authority, would have made the same or similar investment in the near- or medium-term

Green And Grey Infrastructure

Grey infrastructure projects may be selected for Replenishment, but in doing so you should:

- ✓ Clarify ongoing costs, roles and responsibilities to ensure the asset invested in is maintained over its lifetime
- ✓ Ensure there is understanding of the duration for which we can claim the volumetric benefits (i.e., if other parties, such as the local authority, would have made the same or similar investment in the near- or medium-term, this will reduce the duration of benefits you can claim)
- ✓ Ideally only be selected to satisfy low Replenish volumes and/or implemented in areas where green infrastructure options are absent or limited and/or there is a very clear case why grey infrastructure would be the best option (e.g., in the case of cities where the reticulation network is severely degraded and there is significant water loss)

Appendix
Replenishment Project Benefits

Replenish projects play an important role in helping mitigate some of the key water risks facing manufacturing facilities

Types of Risk	Benefits of Replenish Projects
Physical • Availability • Infrastructure	• **Increase in the physical availability** of water due to improved river flows and/or groundwater levels • **Improved climate resilience** and water supply sustainability of the watershed • **Increases public awareness** for water conservation within the watershed
Quality • Declining quality • Infrastructure	• **Improved water quality** as degraded watersheds are rehabilitated • **Reduced risk of water treatment cost increases**.
Regulatory • Nonexistent or poor regulatory frameworks	• Supports the **development of watershed regulatory frameworks** that are appropriate to the scale and nature of the risk
Reputation • Community and /or customer boycotts / demonstrations	• Local communities' benefit from **improved water availability and quality** • Supports awareness and **relationship building with key stakeholders**, including regulatory authorities • You are seen as part of the solution not the problem

Appendix
Additional Resources & Information

Links to additional resources and information

1. Volumetric Water Benefit Accounting methodology
2. What Do “Water Scarcity”, “Water Stress”, and “Water Risk” Actually Mean? – CEO Water Mandate

For questions, please reach out to your PepsiCo Contact